Environmental Baseline Survey

Tonopah Test Range Utility Easement

Prepared

By

Sandia National Laboratories

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TONOPAH TEST RANGE UTILITY EASEMENT

Section 1.0 Purpose:

1.1 Purpose of the Action:

The purpose of this Environmental Baseline Survey (EBS) is to:

1. Document the nature, magnitude, and extent of any environmental contamination of the property.
2. Identify potential environmental contamination liabilities associated with the property.
3. Develop sufficient information to assess the health and safety risks.
4. Ensure adequate protection for human health and the environment related to a specific property.
5. Determine possible effects of contamination on property valuation, and serve as the basis for notice of environmental condition for applicable federal or local real property disclosure requirements.

1.2 Boundaries of the Property and Survey Area:

The site is comprised of a parcel of land within the Nellis Air Force Base, Nye County, Nevada, being described by a survey map and legal description (see Appendix A of this document). The land requirement for the Tonopah Test Range (TTR) power system is comprised of an easement of land, approximately 37.7 acres, that is located in the north-west quadrant of the Nellis Air Force Base known as the Tonopah Test Range. The permit site consists of a main substation and underground/overhead power lines within an easement 15-feet either side of the center line of the power system, and approximately 10 miles in length. See Attachment A for legal survey of the boundaries.

Section 2.0 Survey Methodology:

2.1 Approach and Rationale:

The approach of this action is to perform a document search to identify potential environmental contamination associated with the property. A thorough review of *reasonably obtainable* [1] state, federal, local government, Sandia National Laboratories (SNL) and United States Air Force (USAF) records has been performed as part of this EBS. This review investigated the existence of information concerning this property on Nellis Air Force Base (NAFB).

The SNL Environmental Restoration Program Phase I performed an extensive review of information concerning potential environmental impacts from SNL's operations. This information is based on record searches, an open literature survey, interviews with current and/or former SNL employees, and preliminary site inspections.

The EBS process was conducted in two steps. The first step was to research past disposal operations, handling/processing, and test activities. The second step evaluated the current operations for compliance with environmental regulations. The information collected is presented in this EBS Phase I Environmental Assessment. The 5-year period being requested for this utility easement is from October 1, 2005 through September 30, 2010.

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[1] *Reasonably obtainable* for the purposes of this document shall be considered equivalent in scope and intent to the term *reasonably ascertainable* as defined in the *ASTM Standard E1527-00, Section 3.3.30*

2.1.1 Description of Documents Reviewed:

a) Recent AF813 #AF 05-0012.
b) *Environmental Baseline Survey for Tonopah Test Range,* March 2001, prepared for Air Force Center for Environmental Excellence by URS Group Inc., Oak Ridge, Tennessee. See Appendix B for relevant citations from this document.
c) *Calendar Year 2003 Annual Site Environmental Report for Tonopah Test Range, Nevada and Kauai Test Facility, Hawaii.* September 2004, Sandia National Laboratories, Albuquerque, New Mexico.

2.1.2 Property Inspections:

Representatives of the Land Use Permit Team conducted a site visit of the proposed utility easement on February 22, 2005. No remarkable environmental concerns or issues were observed, unless otherwise noted within this document.

2.1.3 Personnel Interviews:

a) Mr. Richard Scarine, Tonopah Test Range Department, SNL Organization 02915, was interviewed on February 10, 2005.
b) Mr. Norman Wasson, SNL Systems Engineering, Organization 10853 was interviewed on February 10, 2005.
c) No other USAF personnel were contacted regarding the proposed utility easement area. USAF personnel other than those associated with the 98 Range Wing/EMR for ER Program information are not considered to be a source of authoritative environmental information related to SNL operations/activities within the subject permit boundaries.

2.1.4 Sampling:

There were no observed indications for the performance of sampling and analysis at the subject property. Sampling was not conducted as part of this EBS[2].

Section 3.0 Findings:

3.1 History and Usage:

3.1.1 History:

The Tonopah Test Range (TTR) power system was designed and constructed under contracts from the United States Atomic Energy Commission, Sandia Area Office, Albuquerque, NM. The original construction drawings are dated July 1, 1970 with revision 1 showing the "As Built" condition dated July 31, 1971. Since the power system was constructed, it has been under the control of the Sandia Corporation, M&O contractor to the Department of Energy/National Nuclear Security Administration (NNSA), successor to the Atomic Energy Commission. The Sandia Corporation has contracted the on-going operation/maintenance of the power system to various contractors, with Westinghouse being the present contractor. At the time of construction, the Power System was within the TTR boundary.

A land permit between the United States Air Force and NNSA dated 26 April, 2002 changed the TTR boundary such that the power system's main substation and approximately 10 miles of overhead line fell outside the new boundary limits. A Grant of Easement for these portions of the power system has been requested.

[2] Sampling is not performed during a Phase I Environmental Assessment per ASTM E1527-00. If sampling is warranted, a Phase II investigation would be initiated and if needed, a Phase III remedial action.

Over the course of years, the TTR Power System deteriorated to such an extent that the quality and reliability of the electric service has jeopardized the mission related test activities conducted at TTR. In January 2004, a study was completed that documented the problems associated with the System and recommended 2 General Plant Projects necessary to repair/refurbish the System. Included with this study was a Site Plan that shows the location of the reduced boundary with respect to the Power System. Although it is noted on the Site Plan that the boundary and Power System were not surveyed for accuracy, it appears that the Main Substation, ~10% of the East Feeder, and ~50% of the West Feeder are outside the reduced TTR boundary. A legal survey has been prepared to show exactly the extent of the power system that is outside the TTR boundary (Attachment A).

3.1.2 Current and Future Use:

The current power system supplies power to a number of SNL and Air Force facilities at TTR. Upon receiving permission from the U.S. Air Force for the utility easement, SNL is proposing to refurbish the power system. The refurbishment of the power system would allow the power system to continue to meet SNLs mission activities at TTR.

3.1.3 Activities, Structures and Buildings:

The proposed permit site incorporates the following types of activities, structures and buildings:

- Power system main substation and approximately 32 miles of overhead powerline and associated power poles.

3.2 Environmental Setting:

The permit site for the TTR Power System is located on the North Range portion of Nellis Air Force Base. The TTR is situated in the Great Basin section of the Basin and Range Province. The climate of the TTR region is arid, with an average of 5 in. of precipitation per year [National Weather Service (NWS) 1998]. Summer (July) temperatures average 74°F with highs to 103°F; winter (January) temperatures average 32°F with lows to -15°F.

3.2.1 Geology:

The TTR is situated in the Great Basin section of the Basin and Range Province. Area geology is characterized by northwest trending mountain ranges bounded by high angle normal faults and separated from other ranges by broad, flat basins.

Rocks exposed in the ranges (e.g., Cactus and Kawich Ranges) in the TTR region are dominantly mid to late Tertiary age volcanics, mainly tuffs and rhyolite lava flows. Paleozoic and pre-Cambrian rocks are present at depth, but do not outcrop in the TTR. These rocks are sedimentary and include sandstones, siltstones, shales, limestones, and dolomites. The pre-Cambrian rocks are typically metamorphosed, and high-grade metamorphics (gneiss and schist) outcrop.

The basins between ranges are structurally and topographically low and receive sediments eroded from the ranges. On range flanks, sediments consist of coarse-grained and bouldery colluvium. Sediments become finer with distance from the ranges as they are transported by floods. This poorly sorted gravelly to sandy alluvial fan material is the most extensive surface cover in the TTR.

3.2.2 Hydrology:

The land use area resides within Nevada's Central Hydrographic Region, as defined

by the Division of Water Resources. Groundwater under TTR occurs in four major aquifers: lower carbonate aquifer, upper carbonate aquifer, volcanic aquifer, and alluvial valley-fill aquifer. The mean elevation TTR is 5,500 feet above mean sea level.

The shallowest groundwater known in the area is present at a depth of 45 ft in SNL Well 1. This appears to be a perched water table in alluvial fan sediments, since deeper sediments were dry. The shallowest productive aquifer is present in alluvium at 137 ft in SNL Well 7 at Area 9. Productive alluvial aquifers are present at 210 ft in SNL Well 5 (south side of Main Lake) and at 351 ft in SNL Well 6 (located in the Control Point of Area 3. Well 6 serves as the potable supply well for SNL facilities. SNL Well 8, about 4 miles south of Area 3, produces water at low rates from alluvial sediments. It serves to supply water only for construction and dust control. Additional wells drilled by the USAF and DOE revealed initial static water levels between 111 and 818 ft; these depths may not represent true water levels because they were measured shortly after drilling was completed.

3.2.3 Vegetation & Wildlife

Plant communities of the TTR are typical of central Nevada. Big sage, hop sage, Indian rice grass, and four-wing saltbush dominate the valley floors. Cedar and pinyon pine are the dominant macrophytes of the ranges. Joshua trees (*Yucca brevifolia*) are present in some areas. These are near the northern limits of their range.

Mammals found in the area include wild horses, antelope, mule deer, mountain lion, bobcat, coyote, red, gray, and kit fox, cottontail and jack rabbit, and numerous rodents. Reptiles include western diamondback rattlesnakes, sidewinders, and a number of lizard species. Bird populations include golden eagle, redtail hawk, vultures, kestrals, cactus and rock wrens, horned larks, and ravens and crows.

See Appendix B of this document for more detailed environmental information relative to this utility easement.

3.3 Hazardous Substances:

The following information (Sections 3.3.1 through 3.18) is based upon personnel interviews, and the preliminary site inspection.

3.3.1 Hazardous Materials and Petroleum Products:

There are no hazardous materials or petroleum product use or storage associated with this proposed utility easement.

3.3.2 Hazardous and Petroleum Waste:

There is no hazardous or petroleum waste generation, storage, treatment or disposal associated with this proposed utility easement.

3.4 Environmental Restoration Program (ERP) Contamination:

In a 1992 agreement between DOE Headquarters, DOE/National Nuclear Security Administration (NNSA) Service Center and the DOE Nevada Site Office (NSO), it was agreed upon that DOE/NSO would be responsible for the remediation of ER sites at TTR.

Since 1996, cleanup activities for sites located in the State of Nevada have been regulated by the Federal Facility Agreement and Consent Order (FFACO). The

FFACO was negotiated between DOE/SSO, the Nevada Division of Environmental Protection (NDEP), and the U.S. Department of Defense (DoD).

According to the FFACO Use Restrictions Map for TTR, the proposed utility easement would not come in contact with or impact any ERP sites.

3.5 Storage Tanks:

There are no active or abandoned, above or below grade gasoline, oil, or chemical storage tanks, pipelines, hydrant fueling, or transfer systems associated with SNL activities at this proposed utility easement site.

3.5.1 Aboveground Storage Tanks:

This is not applicable.

3.5.2 Underground Storage Tanks:

This is not applicable.

3.5.3 Pipelines, Hydrant Fueling, and Transfer Systems:

This is not applicable.

3.6 Oil/Water Separators:

There is no known SNL oil/water separators associated with SNL activities related to this proposed utility easement. No preexisting facilities of this nature are known to exist at this site.

3.7 Pesticides:

SNL uses pesticides to control rodent and insect populations inside buildings. Licensed professionals contracted to SNL apply these chemicals. Herbicides are used in developed areas as needed to control weeds. Licensed professionals contracted to SNL apply these chemicals. There is no known or observed recent use of pesticides/herbicides associated with SNL activities related to this proposed utility easement.

3.8 Medical or Biohazard Waste:

Operational and anticipated SNL activities at this site are not and would not be associated with medical or biohazard wastes.

3.9 Energetic Material:

There are no other known or observed energetic materials associated with SNL activities related to this proposed utility easement.

3.10 Radioactive Waste:

There would be no radioactive waste generated by the power system or its continued operation.

3.11 Solid Waste:

Solid waste would not be generated at this proposed utility easement, unless generated from maintenance/repair activities. The waste generated from these activities would not be characterized as hazardous. Solid wastes would be disposed of in approved sanitary landfills.

3.12 Groundwater:

There is no known groundwater impacts from operations associated with this proposed utility easement.

3.13 Wastewater Treatment, Collection, and Discharge:

There is no wastewater treatment, collection, and discharge requirements or installations associated with this proposed utility easement.

3.14 Drinking Water Quality:

There are no potable water requirements associated with this proposed utility easement.

3.15 Asbestos:

There is no known asbestos associated with this proposed utility easement.

3.16 Polychlorinated Biphenyls (PCBs):

There are no known PCB impacts at this proposed utility easement.

3.17 Radon:

AFI 32-7066 requires that radon be assessed for housing and certain other high-occupancy buildings. None of the buildings controlled by SNL at the TTR are considered high-occupancy, and there are no SNL housing areas. There are no known radon issues associated with this proposed utility easement location. Sampling for radon was not conducted as part of this Phase-I investigation.

3.18 Lead-Based Paint:

There is no lead-based paint issues associated with this proposed utility easement.

Section 4.0 FINDINGS FOR ADJACENT PROPERTIES:

4.1 Land Uses:

Adjacent properties predominately include NAFB, SNL and DOE facilities and test areas.

4.2 Surveyed Properties:

Adjacent areas (within ½ mile) have been evaluated for the presence of Use Restrictions. The proposed utility easement would not be located within any Use Restrictions Areas.

Section 5.0 APPLICABLE REGULATORY COMPLIANCE ISSUES:

5.1 List of Compliance Issues:

See Section 4.2 of this document.

5.2 Description of Corrective Actions:

See Section 4.2 of this document.

5.3 Estimates of Various Alternatives:

Proposed Action:

The Proposed Action is a request from SNL to Nellis Air Force Base (NAFB) for a

utility easement to an existing underground/overhead power system to support operations and facilities located at TTR. The existing power system was originally established in 1971 by SNL and was within the TTR boundary. A land permit between the United States Air Force (USAF) and DOE/National Nuclear Security Administration (NNSA) dated 26 April, 2002 changed the TTR boundary such that the power system's main substation and approximately 10 miles of overhead line fell outside the new boundary limits.

SNL is requesting a utility easement to incorporate the existing underground/overhead power system, which provides power to a number of USAF and SNL facilities at TTR. The land requirement for the TTR power system is comprised of an easement of land, approximately 37.7 acres. The permit site consists of a main substation and underground/overhead power lines within an easement 15-feet either side of the center line of the power system, and approximately 10 miles in length. Attachment A contains a legal survey and location map of the proposed utility easement. The 5-year period being requested for this utility easement is from October 1, 2005 through September 30, 2010.

In addition to the utility easement, SNL is requesting permission to refurbish the existing power system so that it would continue to meet SNL's mission activities at TTR. Over the course of years, the TTR Power System has deteriorated to such an extent that the quality and reliability of the electric service has jeopardized the mission related test activities conducted at TTR. Activities would include refurbishment of the Main Substation, East Feeder, and West Feeder.

Work anticipated at the Main Substation would include the replacement of the voltage regulators and installation of isolation switches with overcurrent protective devices so that the East and West Feeders could be isolated separately without shutting the entire system down. New concrete equipment pads (one approximately 6 feet [ft] x 6 ft, and one approximately 6 ft x 10 ft) are proposed. Replacement of minor equipment such as 15-kilovolt (kV) insulators and line clamps would be included.

Work that is proposed for the West Feeder would include:

- Replacement of ~190 wooden 6-ft cross-arms with 10-ft cross-arms
- Replacement of ~570 ceramic insulators with new insulators
- Re-tensioning ~ 16 circuit miles of overhead conductors
- Installation of ~1-1/2 miles (mi) of new overhead line and ~1/2 mi of new underground line to bypass ~2 mi of existing overhead line for subsequent removal (This would require ~16 new wooden poles to be set ~6 ft deep in the ground and an ~2,700 ft long by 2 ft wide by 3 ft deep trench to be excavated for the underground line, followed with backfill and tamping.)
- Installation of ~14 line switches and fuse cutout assemblies
- Replacement of minor equipment, such as conductor armor wire, guy anchors, jumpers, etc.

Work anticipated for the East Feeder would include:

- Replacement of ~180 wooden 6-ft cross-arms with 10-ft cross-arms
- Replacement of ~540 ceramic insulators with new insulators
- Re-tensioning ~16 circuit miles of overhead conductors
- Installation of ~9 line switches and fuse cutout assemblies
- Replacement of minor equipment such as conductor armor wire, guy anchors, jumpers, etc.

Other Alternatives:

No Action Alternative

The No Action Alternative would be for the Air Force to not grant the utility easement. This would require that NAFB assume sole responsibility for maintenance of the power-line. Should NAFB be overburdened with similar maintenance requirements elsewhere during the period of needed maintenance, SNL could experience service interruptions. Power interruptions to the SNL facilities and test areas sites could impact Research and Development activities vital to National Defense.

Section 6.0 CONCLUSIONS:

To the best of the author's knowledge there are no known or undisclosed SNL environmental impacts at this proposed utility easement site, unless otherwise noted within this document.

6.1 Facility Matrix:

Category 1 – No Storage, release or disposal has occurred. Property where no hazardous substances or petroleum products or their derivatives were stored, released into the environment or structures, or disposed on the subject property and where no migration from adjacent areas has occurred.

6.2 Property Categories Map:

This is not applicable.

6.3 Resources Map:

This is not applicable.

6.4 Data Gaps:

This is not applicable.

Section 7.0 RECOMMENDATIONS:

Based upon the information contained within this EBS report, the following recommendation(s) are offered:

Approve the utility easement.

Section 8.0 **CERTIFICATION:**

"I have conducted this Environmental Baseline Survey in cooperation with Sandia National Laboratories and the United States Air Force in accordance with the requirements contained in Air Force Instruction 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*. I have reviewed all reasonably obtainable records and conducted visual site inspections of the selected facilities following an analysis of information during the record search. The information contained within the survey report is based on records made available and, to the best of my knowledge, is correct and current as of May 5, 2005."

Certified by: _____ Date: 5/5/05

Christopher S. Catechis
Contractor to Sandia National Laboratories

Accepted by: _____ Date: 6/20/05

Susan D. Lacy
Department of Energy,
Sandia Site Office (SSO)

Accepted by:

_____ Date: _____

Approved by:

_____ Date: _____

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